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AUTHOR Smith, Ida
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ABSTRACT

The methods used to analyze the status of women academics at Queen's University, Ontario, Canada, are described. An initial study examined several individual variables believed to affect salary and compared the findings for men and women faculty and utilized a multiple regression analysis to integrate most of those variables into one model. A second study of the same faculty used a simple statistical review similar to that used in the initial study and an adaptation of a peer pairing approach. This study focused on those faculties and discipline groups where most women held positions. Patterns of appointment and promotion, as well as salary review over a 10-year period, are discussed. Both the dean and the individual woman faculty member were asked to name a peer, since the choice of peer reflects a judgment about where an individual is or ought to be. The peers and the women were asked to complete detailed questionnaires on qualifications, experience, and current activities. Comparative salary levels and salary histories were also obtained on the peer pairs. The limitations of quantitative methods and of the peer pairing method are discussed. Integration of traditional review procedures with techniques of statistical analysis and peer pairing allows greater equity at both the group and individual level than any of these methods separately. (SC)

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Problems in and Approaches to Monitoring the Status of Women Faculty: A Case Study

Ida Smith
Research Officer
Office of Academic Planning
Queen's University
Kingston, Ontario
Canada
K7L 3N6

Telephone: (613) 547-2641

Abstract

The paper discusses the methods used to analyze the status of women academics at a university where their numbers are too small to place confidence in standard techniques such as multiple-regression analysis. Patterns of appointment and promotion, as well as salary review over a ten year period are discussed. The limitations of quantitative and other technical methods including peer-pairing are raised. The problem of administrative resistance is mentioned. The paper ends with describing an approach to integrating traditional review procedures with quantitative and other technical methods, to allow for equity at both the group and individual level.

The First Steps Towards Equality

This paper outlines briefly some of the work that was done on the status of women at Queen's University, Kingston, Canada. We were and are quite typical of many universities in both the United States and Canada inasmuch as in the early seventies the question of status — equal pay and appointment and promotion opportunities arose. And like most of those universities, we produced a report which was nicely timed to come out well ahead of International Women's Year and sufficiently ahead to be considered one of the first reports.

In that report we looked at the status of women students, staff and faculty. We took, perhaps, the closest look at faculty. In some ways, it was not difficult to take a close look. In the 1972-73 academic year, there were only 61 women with full-time appointments at the University — approximately 8% of the total faculty.

The small numbers led to some problems. The major one for us was whether one could establish on a statistical basis questions of equity with regard to salary and promotion when the numbers barely permitted any of the standard tests to be valid.

We ended up with a two-fold approach. First, we examined each of the variables which we thought affected salary — age, rank, faculty, years of service at the University, highest degree and years since highest degree — and compared the findings for men and women faculty. Second, we undertook a multiple-regression analysis whereby most of these factors were integrated into one model.

Our simple findings showed that women tended to be more concentrated in the lower ranks (lecturer and assistant professor), earn less within each rank, while having equal working experience and, with the exception of the Faculty of Education, equal qualifications in terms of degrees earned. While many debated the exact amount of the salary discrepancy these figures pointed to, no one questioned that they were indicative of some degree of differing treatment.

The multiple-regression analysis evoked quite a different response. First, by relating all the variables, we ended up with some anomalies, e.g., it was a negative factor to have a Ph.D. Those with simply a B.A. fared much better. Although there is a logical explanation for this anomaly since those with only a B.A. are few and far between, tend to be older and are usually outstanding, all of which is reflected in salary, the model appeared to deviate sharply from a common sense understanding of the University reward system. Second, and more seriously, those who understood the model questioned its validity since the number of women was small and unevenly distributed in the four ranks and among the several faculties. Therefore, it was argued, the standard tests of significance would be of little help in deciding whether or not differences based on gender were within expected and acceptable ranges of variability, particularly if rank and discipline were to be taken into account. Debate raged, albeit rather quietly around deans' and the Principal's[1] desk. The focus was not the salary issue but the method of evaluation. Those who believed there was no need to make adjustments were able to claim the

matter needed further review. And some time and credibility was lost.

Official Action, Public Reaction

Review did come in a much less public manner than the first report. The Principal asked the deans to evaluate each woman member of faculty on a "peer pairing" basis. In short, the deans and department heads were to select a male colleague with similar qualifications and experience to the woman, and see if salaries were equal.

This very private, internal process did lead to salary adjustments. After three separate rounds of review, over one-third of the women faculty had their salaries adjusted by approximately $1,000 on average. This sum was less than the overall discrepancy of $1,500 to $2,000 found between the salaries of men and women by the first report but certainly was a significant step in the right direction.

Interestingly enough, the peer pairing process had some beneficial side effects for the male peers. A few of them had their salaries raised to the level of the respective woman colleague!

However, the old cliché that justice must not only be done but be seen to be done applied in this case. The administrative review was held suspect by those it was meant to serve. They had no way of ascertaining how many women had received salary adjustments and the extent of those adjustments. There was no impartial review process to assure them of equity.

The answer, of course, was yet another committee. This time it was a Principal's Advisory Committee instructed to look at appointment and promotion practices as they affected women faculty.

Seeing that Justice is Done

This committee met and realized it faced the problem which had beset the first committee — that of dealing with low numbers. In addition, the situation had become more politicized than when the first report was released. Hence, the committee had to develop an approach which would bridge the gap between administrative action and public perception.

This committee, too, decided on a two-fold approach: first, a simple statistical review similar to that undertaken by the first committee but with some refinements since more data was available; second, adaptation of the peer pairing approach used by the deans.

The results of our earlier attempts at multiple-regression analysis had made it clear that there were sufficient differences between faculties as to make salary comparisons dubious, and carried one step further, the logic of the academic marketplace also suggested that it was probably unwise to draw comparisons between widely divergent disciplines such as classics and economics even though both were within one faculty. We therefore focused on those faculties and discipline groups where most women held positions — the social sciences, the humanities, education, rehabilitation therapy and nursing. For the first four, comparison with their male colleagues was possible. For nursing,

where all the faculty were women, we had to adopt a different tack.[2]

While comparisons were possible, they were not always easy or straightforward. We wanted to develop data which would illustrate publicly the position of women yet not reveal any individual's identity. And in our situation, reporting rank and discipline, would narrow the choice down to one or two. We decided not to use rank in our analysis. Even if the question of confidentiality had not arisen, we would have made that choice since rank, just as salary, reflects how a person's career is judged. To some extent to develop an equation, as our earlier multiple-regression did, which made salary depend on rank plus some other variables, was almost the equivalent of saying salary equals salary plus something else.

Ideally we would have liked to analyze career progress in terms of the two major factors which, we thought, most significant — qualifications (degrees earned) and years of experience. There were certainly other factors which would need to be considered in any complete evaluation but they did not lend themselves to numerical analysis. Rather, years of experience became a surrogate for all the activities upon which individuals were judged once they had completed their degrees. In our analysis, age was substituted for years of experience since university computer records did not give a work history. Again, this introduced the possibility of distortion since some career patterns may vary from the norm and an individual of fifty may have only ten years of university teaching experience. On the average, however, age

was a good substitute for years of experience when looking at the career progress of men.

It could be argued, however, that women have different work patterns than men and that age is not so well correlated with years of experience for them. Fortunately, when we were dealing with so few women, we were able to allow for discrepancies by examining their individual work histories.

The Statistical Component

Information was supplied by the University which gave the date of appointment, rank at appointment, rank for all subsequent years, salary by year, age, department (discipline), degrees held and dates received, leave (sabbatical) status and termination date where appropriate for all members of faculty. From the above data, using the Statistical Package for the Social Sciences (SPSS) program, mean salary by age graphs were developed for the men for each academic year beginning in 1970 through to 1976-77. Adjustments were made for discipline group and degrees held. As previously noted, no adjustment was made for rank since testing had shown that including rank as a separate variable did not significantly improve the fit of the salary line.

We ended up with a series of graphs which showed for each discipline group, separated into two categories with and without a Ph.D., the salary by age of the men. The position of individual women, with corrections for experience or the lack of it, was plotted on the chart. We then were able to report publicly how many women earned above or below the average (i.e., the expected)

salary, and how many fell into the questionable range of more than one standard deviation from the average salary for age curve. Moreover, we were able to show how the position of women had changed since the time of the first report.

Technically speaking, the explanatory model for salary had been reduced to a linear regression with the age of men, and the test for women was based on making the null hypothesis that they belonged to the same population as men. Because very few men were more than one standard deviation below the regression line, one could entertain the hypothesis of discrimination against any women being paid below that range.

Our statistical review also included an analysis of promotion patterns. For each of the discipline groups mentioned, we traced the promotion pattern of men who had been appointed to the University since 1966 and were still on staff (i.e., the successful cohort). We compared the promotion rate of individual women to that of the successful male cohort. The pattern which emerged was one of women being promoted somewhat more slowly in the system. Again, the figures were too low to be statistically definitive but they were indicative.

The statistical review was designed to inform the community on the current status of women and how, if at all, administrative action had corrected the situation first documented in the earlier report. And, of course, it did show clearly that the position of women in general had improved. But it also showed that some anomalies remained. These were examined by a peer pairing process.

The Peer Pairing Component

The peer pairing exercise conducted earlier by the deans had resulted in effective corrective action. Moreover, it allowed for adjustments while taking into consideration the normal factors used in evaluating performance and hence, salary and promotion. The drawback to the deans' review was that the exercise had been conducted without the participation of the women. The peer was the dean's choice or that of the department head.

We decided that both the dean and/or department head and the woman should be asked to name a peer. The choice of peer reflects a judgement about where an individual is or ought to be. Hence, if there was a mis-match in the two choices, we would have an early indication that this was a problem area. Another advantage of having both parties pick a peer was that by participating in the selection process both became part of the evaluation procedure and less likely to question the final results.

One interesting aspect of the peer pairing process was that we were required to write to all the male peers and ask for their participation in the process. Perhaps the University grapevine had spread the news of the beneficial effects to some men of the last review or, and I prefer to think this was the case, perhaps the men wished to ensure equality of treatment for all members of faculty. Whatever the motivation, all but three of over 150 men named as peers agreed to participate. A heartening response from a considerable proportion of the faculty.

The peers and the women were asked to fill out detailed questionnaires giving information on qualifications, experience, teaching duties, research activity and administrative responsibilities. Actual salaries for each were obtained. The salary progression of the woman and the two peers over five years was graphed. If the salary spread between the peers and the woman was minor (less than 5%) and if any promotions were awarded to the woman and her peers within a year or two, the committee went no further, but assumed all was well or at least equal. If there were marked discrepancies (more than 5% in terms of salary and two or three years in terms of promotion), the committee looked at the other criteria. It invited the appropriate dean to comment. If after the dean's explanation, and upon further examination of the information supplied by the questionnaires, the committee thought the discrepancy unjustified, it recommended to the Principal that the woman's salary be reappraised and/or that she be considered for promotion.

In this exercise, through the response of the peers and the women themselves, we knew we had the support of faculty. What we were attempting to do, by inviting participation of the deans and by formulating our recommendations as we did, was to retain the support of deans and department heads. Whether we completely succeeded is a moot point. Certainly, any incursion into decision making on promotion and salary is bound to be questioned by those ultimately responsible for these decisions. By stressing that the peer pairing process was not usurping this role but supplementing it and that in the last analysis the normal procedures would apply, we did obtain the required reviews.

Perhaps the best results of the peer pairing process were the ones which never required a formal report. In one or two cases which we discussed with a dean but did not ask for a formal review, promotion followed within a year. In a number of cases, too, the dean and the woman had named the same peer thus indicating both shared the same perception of the woman's career progress and that she was being treated fairly.

Concluding Remarks

If this history illustrates any point, it is that simple models often work best. They are more readily understood by many of those who need the information and, when dealing with limited data, may provide a more accurate evaluation. There are limitations in any model. Factors which determine appointment, salary and promotion are not always quantifiable. Hence, while one can make general observations for a group, at the individual level they become much less valid. Even the peer-pairing process, which is on an individual basis, does not by itself resolve the problem of fairness although it does screen out the more obvious examples of inequality which may exist. Traditional procedures (review by colleagues in the discipline, assessment by the department head and dean) provide a judgemental element. Integration of traditional review procedures with techniques of statistical analysis and peer-pairing allows for greater equity at both the group and individual level.

Footnotes

1. Queen's University was founded by determined Scots and we cling to that heritage in the titles we use. Hence, Principal is used for President.

2. In Nursing, where there was no internal group with which to compare the women faculty, information from Statistics Canada giving the salary/age/rank/degree distribution for nurses at other Canadian universities, was used to determine the relative position of members of the Nursing School. In our review the annual salary of each faculty member was expressed as a percentage of the mean and median annual salary of nursing instructors in the same age/rank/degree level category at other Canadian and Ontario universities. The comparison of Queen's nursing salaries with those nursing instructors at other Ontario universities was unavoidably incomplete because confidentiality considerations prevented Statistics Canada from releasing mean and median salary figures for age/rank/degree level groups with three or less observations. This limitation of the base group data meant, for example, that for the 1974-75 salary year only six of eleven full-time Queen's nursing instructors corresponded to age/rank/degree level cells for which mean and median Ontario salaries were available.

   The general impression we gained from our comparisons was that the salaries of members of the School of Nursing, adjusted for age, rank and degree level, exceeded the mean and median salaries paid to nursing instructors in

universities elsewhere in Canada including Ontario.

While we were able to conclude that salaries were fair in terms of meeting the market, this review did not really address the question of equity within the broader social context of the sex-typing of jobs and the lower levels of salary which are presumed to follow from this 'occupational crowding'. This was outside the scope of the committee and indeed the University.